2001

ANNUAL REPORT
of the

ALABAMA
FISH FARMING CENTER

Greensboro, Alabama

COOPERATING AGENCIES

Alabama Cooperative Extension System
Natural Resources Conservation Service
Alabama Agricultural Experiment Station
Alabama Soil and Water Conservation Districts
Alabama Soil and Water Conservation Committee

Table of Contents

DESCRIPTION OF THE ALABAMA FISH FARMING CENTER

The Alabama Fish Farming Center began operation in 1982. Today, there are approximately 26,000 acres of fish farms in Alabama and more than 500 fish farmers.

The Center provides statewide technical assistance and educational programs in all aspects of fish farming. Agencies that support the Alabama Fish Farming Center with funds and personnel are the Alabama Soil and Water Conservation Committee, the Hale County Soil and Water Conservation District, the Alabama Cooperative Extension System, the Alabama Agricultural Experiment Station, the Department of Fisheries and Allied Aquacultures at Auburn University and the Natural Resources Conservation Service. The Center is located in Greensboro at 529 Centerville Street in the Richard Avery Building.

This well-equipped and professionally staffed facility enabled the Center staff to analyze 3,380 water samples, diagnose 692 disease cases, and survey and design 19 pond sites making up 165 acres of water during FY01. The Center staff provided assistance to 50 counties in Alabama during FY01.

The unified and coordinated approach of the Fish Center is paying big dividends for the catfish industry. Efforts of the Center personnel have been credited with saving millions of pounds of fish through timely water quality and disease treatment recommendations.

The Alabama Catfish Festival at Greensboro has been an annual event for the past thirteen years. The Festival, which receives considerable statewide and regional publicity, features farm tours, a trade show, aquarium displays, arts & crafts, historic home tours, and family entertainment. The Center's staff and resources play an important role in helping the community and industry organize and coordinate the Festival.

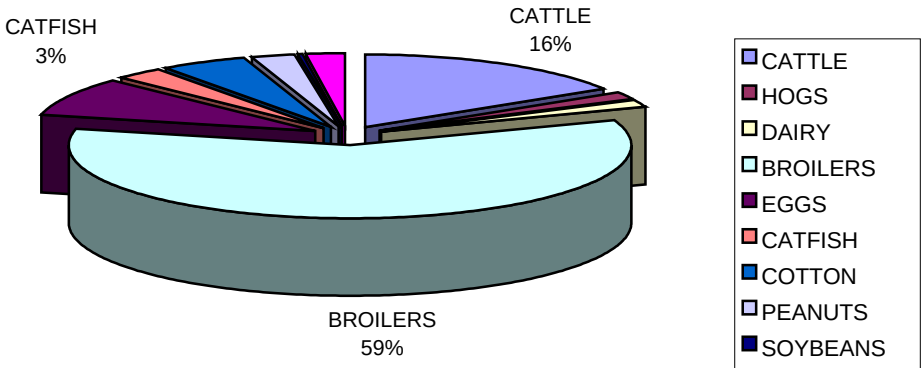
Also housed with the Alabama Fish Farming Center in the Richard M. Avery Building's additional rental office space is a Wildlife Biologist and a Wildlife Technician funded by the USDA/APHIS/Wildlife Services. The principal mission of this agency is to help the producers with aquatic vertebrate pest problems.

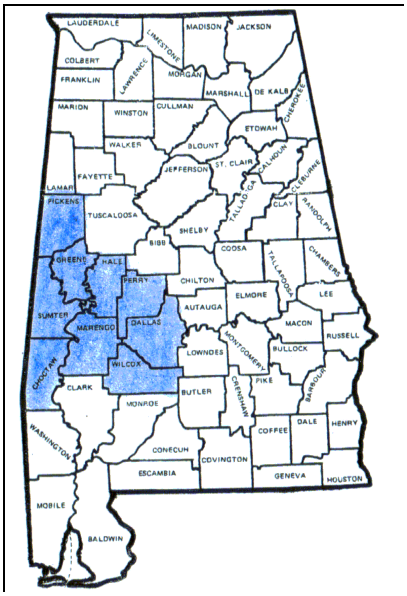
Figure 2 shows the increasing importance of the catfish industry in Alabama. In terms of total cash receipts, catfish is now ranked as the fifth leading cash commodity. Catfish is now ahead of peanuts, vegetables, dairy, hogs and soybeans.

Figure 2.

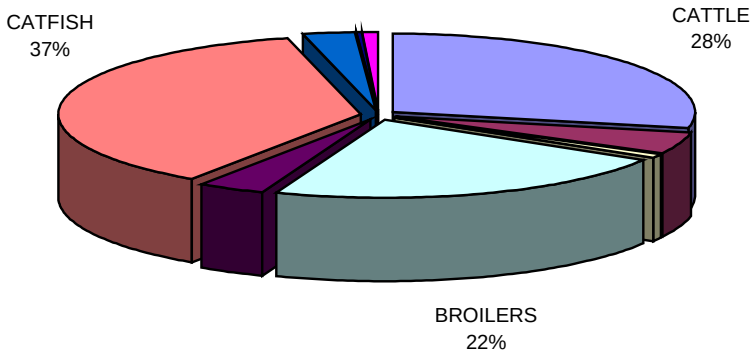
2001 COMMODITY CASH RECEIPTS

ALABAMA STATEWIDE





WEST ALABAMA



ALABAMA FISH FARMING CENTER STAFF

FISH HEALTH SPECIALIST

- William Hemstreet has been with the Center since August 1985. He received a M.S. degree from Auburn and is employed by the Alabama Agricultural Experiment Station (AAES) and is a professional in the Department of Fisheries and Allied Aquacultures.

EXTENSION AQUACULTURIST

- Greg Whitis is employed by the Alabama Cooperative Extension System and is an adjunct faculty member in the Department of Fisheries and Allied Aquacultures. He has degrees from Iowa State and Auburn University.

CIVIL ENGINEERING TECHNICIAN

- Mickey Barton has been employed with the Natural Resources Conservation Service (NRCS) since 1987. He joined the Center staff in March 2001 and provides assistance in pond site selection, design, renovation and construction.

ADMINISTRATIVE ASSISTANT

- Gayle Barnette is responsible for all aspects of accounting and routine office management. She has been employed by the Hale County Soil & Water Conservation District since August 1986.

ENGINEERING TECHNICIAN

- William Bennett has been employed by the Hale County Soil & Water Conservation District since September 1996. William has a B.A. from Stillman College and a J.D. from Atlanta Law School. He assists all of the professionals.

LABORATORY TECHNICIAN

- Barbara Williams has been employed by the Hale County Soil and Water Conservation District since August 1997. Barbara has a B.S. degree in Biology from the University of Alabama.

ENGINEERING ACCOMPLISHMENTS

The civil engineering technician and district technician provided services and assistance on 322 different occasions to catfish producers and potential producers during FY01. Out of the 322 different occasions, 3,021 acres were serviced and benefited. Engineering oversight for the AFFC is provided by the NRCS Resource Engineer in Tuscaloosa.

Engineering services include preliminary investigations of the sites to determine suitability and feasibility of construction, detailed engineering surveys and soils investigations, complete engineering designs of feasible sites, acreage measurements for existing sites and investigations of leaking ponds. Engineering services were also given to local Natural Resources Conservation Service (NRCS) Field Offices on the layout and construction of aquacultural systems and water dispersion systems.

When the opportunity was available, the engineering technician informed the public and producers about the proper engineering aspects of fish farming. During FY01, the engineering technician participated in workshops for fish farmers and gave engineering presentations to tour groups that came through the Alabama Fish Farming Center (AFFC).

When providing services, the engineering technician encouraged producers and potential producers to convert land that was poorly suited for row crops and pasture into ponds for commercial catfish production. This kind of conversion promotes conservation of land and water to provide better use for marginally productive land. Also, the engineering technician worked closely with NRCS and district employees. Individual training was provided in the field to increase their knowledge of the engineering aspects of fish farming.

The engineering technician used computer-aided design and drafting (CADD) software to perform 19 topographical surveys totaling 165 acres. These surveys proved to be valuable to the engineering technician as well as the landowner by enabling the landowner to see the actual property layout on paper before doing the field layout.

Flood routing procedures were used in the design of all fish ponds. This reduced costs and helped the landowner use his/her land more efficiently. Most of the ponds designed during FY01 were "seine-through" which improved the management and seining process.

Ponds were designed this year for new producers as well as established producers. Consistent with previous years many landowners, interested in catfish production, did not have economically or physically suitable pond sites. Assistance was also provided to landowners interested in marine and freshwater shrimp production. Nine marine shrimp ponds were designed in Tuscaloosa and Greene counties totaling 22.3 acres.

The engineering technician used GPS and mapping software to provide measurements for 182 ponds totaling 1,593.6 acres. This equipment increased speed and efficiency in providing acreage measurements as well as mapping entire farms including roads, feed bins, aerators, etc. These maps proved to be valuable assets to the farmers as well as the processors. Farmers use the maps to denote which ponds to seine, treat, stock, etc.

In summary, during FY01, preliminary investigations were performed on 104 sites with an area of 1,082.2 acres. Design surveys and designs were prepared for 18 ponds involving 172.5 acres of permanent water. Acreage measurements were completed on 182 ponds totaling 1,593.6 acres. For a listing of FY01 engineering accomplishments by county, refer to Table 1.

Table 1.

ENGINEERING ACCOMPLISHMENTS BY COUNTY
FY01

COUNTY	PRELIMINARY INVESTIGATION		SURVEYS & DESIGN		ACREAGE MEASUREMENT		CONSTRUCTION ASSISTANCE	
	SITES	ACRES	SITES	ACRES	SITES	ACRES	SITES	ACRES
DALLAS	22	267	5	69.8	7	68.4	5	69.8
GREENE	33	193	0	0	6	56.4	0	0
HALE	5	40	5	40	103	983.2	5	40
LOWNDES	2	4.7	2	4.7			2	4.7
MARENGO	3	28	3	28	5	23.9	3	28
PERRY	34	395.5	0	0	41	274.5	0	0
SUMTER	8	154	3	30	20	187.2	3	30
TOTAL	**104**	**1082.2**	**18**	**172.5**	**182**	**1593.6**	**18**	**172.5**

ACCOMPLISHMENTS OF THE FISH HEALTH SPECIALIST

The primary focus of the fish health specialist was disease diagnostics and the explanation of the treatment options available to farmers. Farmers were also advised on ways to avoid conditions which encourage fish diseases. Whenever possible, ponds were visited when diseased fish did not respond to recommended treatments. The fish health specialist regularly filled in when the Center's Aquaculturist was not available to provide water quality analysis and pond management information. In addition to maintaining the fish disease laboratory, records on fish disease cases were also maintained. These records are part of a 15-year data base of information collected at the Center which is used to provide Auburn University and the U. S. Department of Agriculture researchers with data concerning the trends and economic importance of specific fish diseases on a regional and national level.

During FY2000, the fish health services at the Center were used by 173 different farmers. Diagnostic services were performed 692 times with cases from 26 different counties and 4 different states (See Table 2). This was a 8% increase in the case load over FY2000.

Bacterial diseases were the most frequent cause of fish mortality during FY2001 accounting for 46% of the disease case load (See Table 3). Chondrococcus columnaris represented 26% of the disease case load. Edwardsiella ictaluri represented 31% of the disease case load. Many of the cases exhibited combinations of bacteria and/or parasites at the same time during the disease process. Aeromonas sp. was found in 16% of the disease case load but was found mostly as a secondary etiological agent.

Parasitic diseases which caused either mortality or stress problems accounted for 14% of the disease case load. Most of the parasites were protozoans (one called parasites).

Other disease conditions which caused significant mortality for the fish farmers in west Alabama were winter mortality syndrome which was 11% of the disease case. Severe anemia (no blood) was 4%; proliferative gill disease (hamburger gill) was 3%; poor water quality was 5%; the parasite Ichthyopthirious was 2.5%; and unidentified natural toxins were 2.5% and channel catfish virus was 1.5%.

Routine fish examinations involving no obvious disease problem comprised 22% of the FY2001 total case load. A significant number of the routine cases processed by the Center continue to be examinations to evaluate prophylactic procedures used by fingerling and food fish producers. These routine examinations account for the difference between the total case load and the disease case load.

Table 2.

COUNTIES AIDED BY DISEASE DIAGNOSTIC SERVICES		
COUNTY	NUMBER OF CASES	PERCENT OF TOTAL
AUTAUGA	1	.14%
BALDWIN	2	.2%
BARBOUR	5	.7%
BIBB	1	.14%
BUTLER	1	.14%
CHEROKEE	1	.14%
CHOCTAW	17	2.4%
CLARKE	1	.14%
CONECUH	1	.14%
COVINGTON	2	.2%
DALLAS	34	4.9%
FRANKLIN	4	.57%
GENEVA	1	.14%
GREENE	100	14.4%
HALE	278	40%
HOUSTON	3	.43%
JEFFERSON	3	.43%
MARENGO	26	3.75%
MOBILE	5	.7%
PERRY	110	16%
PICKENS	2	.2%
SUMTER	8	1.15
TUSCALOOSA	7	1.01%
WALKER	2	.2%
WASHINGTON	2	.2%
WILCOX	4	.57%
STATE	NUMBER OF CASES	PERCENT OF TOTAL
GEORGIA	1	.14%
FLORIDA	55	7.9%
MISSISSIPPI	4	.57%
SOUTH CAROLINA	7	1.01%

The fish health specialist also worked closely with the Alabama Pesticide Residue Testing Laboratory and the three main processors, Southern Pride Catfish, Inc., Harvest Select Catfish, Inc., and SouthFresh Catfish, Inc. He helped coordinate the collection and delivery of samples to the laboratory to satisfy the new FDA mandated seafood inspection, HACCP (Hazard Analysis of Critical Control Points), which requires regular pesticide monitoring.

Table 3.

SUMMARY OF DIAGNOSTIC RESULTS AND CAUSATIVE AGENTS FOR FY2001		
CATEGORY	CAUSATIVE AGENT	NUMBER OF DIAGNOSES*
Bacteria	Edwardsiella ictaluri	166
	Aeromonas species	89
	Chondrococcus columnaris (combined int. & ext.)	139
	Edwardsiella tarda	4
	Pleisiomonas species	4
Parasitic Protozoans		
	Trichodina	105
	Ambiphrya	30
	Trichophrya	12
	Ichthyophthirius	16
	Henneguya	4
	Ichthyobodo	1
Other Parasites		
	Fungus	83
	Digenetic trematode	1
	Monogenetic trematode	1
	Lernea	2
	Angulus	1
	Fire Ants	2
Nitrite Poisoning		2
Winter Mortality Syndrome		61
Poor Water Quality		27
Severe Anemia - (No Blood Disease)		22
Proliferative Gill Disease-(Hamburger Gill)		16
Treatment Overdoses		4
Channel Catfish Virus		9
Unidentified Toxins		15
Routine Fish Health Examinations		154

*Many cases exhibited combinations of different bacteria and/or parasites at the same time during the disease process.

ACCOMPLISHMENTS OF THE EXTENSION AQUACULTURIST

2001 was the extension aquaculturist's fourteenth year at the Center. His accomplishments were as follows-

- Sent 3 newsletters to 225 subscribers.
- Contributed information to 7 different magazine and newspaper articles.
- Organized and conducted 10 tours involving 172 individuals. Countries assisted included Australia, Brazil, China, Japan, Mexico, Turkey, and Portugal.
- Delivered 9 speeches to 600 people.
- Wrote 25 letters and visited 38 catfish farms.
- Conducted 3 workshops involving 71 people.
- Attended 12 meetings and conventions representing the Alabama Fish Farming Center.
- Provided detailed assistance to 552 individuals.
- Provided assistance to Alabama's processing industry on 13 occasions.
- Provided assistance to USDA/APHIS/Wildlife Service biologist on 4 occasions.
- Assisted 12 different governmental agencies. Assisted various associated aquacultural industries on 29 occasions.
- Performed or supervised tests on 3,380 water quality samples for 1,189 producers. (Some of these producers visited more than once).
- A total of 6,749 contacts through 552 office and 38 farm visits, festivals, newsletters, tours, mail-outs, workshops, meetings and telephone calls. This is an average of 27 individuals per workday.
- Helped organize the Aquarium Display and conducted the 2nd Annual Fishing Rodeo for Alabama's 14th Annual Catfish Festival.
- Served as secretary for the Tenth Annual Crawfish Festival in Faunsdale. This attracted over 5,000 people.
- Conducted two field demonstrations of hybrid catfish production in West Alabama.

- Reviewed five manuscripts for professional aquaculture journals.

- Continued verification studies with four different producers.

- Provided technical assistance to the Wildlife Services biologist in cormorant roost dispersal and bird counts.

- Assisted numerous graduate students from Auburn University with their academic projects.

- Assisted the Department of Fisheries and Allied Aquacultures faculty on 34 different occasions.

- Guest lectured twice for Dr. Claude Boyd on "Practical Aspects of Water Quality Management" at Auburn University.

- Acquired alligatorweed flea beetles and distributed them to nine different producers.

- Assisted teachers with recirculating systems in two area high schools.

- Assisted county agents in the counties of Baldwin, Barbour, Bibb, Butler, Chilton, Colbert, Covington, Cullman, Dallas, DeKalb, Fayette, Franklin, Hale, Jackson, Lamar, Lauderdale, Limestone, Marengo, Monroe, Perry, Pickens, Tuscaloosa, Washington, on 62 different occasions.

- Investigated the feasibility of using a greenhouse for both tomato culture and shrimp acclimation. Involved calling a tomato expert at MSU and visiting a tomato greenhouse. Net returns are likely however labor demands are extremely high.

- Prepared and submitted a twenty-one page professional dossier for the Alabama Cooperative Extension System. Promoted to the terminal rank of Extension Specialist III.

- Added a new water weed, *Azolla mexicana*, to my lifelong list.

- Assisted Dr. John Plumb at the Department of Fisheries and Allied Aquacultures with the diuron approval process for 2001.

- Prepared and sent out an offal industry white paper to Alabama's processing industry. Offal disposal could be termed the next achilles heel of the catfish industry. If one or two offal plants shut down, processing would come to a standstill overnight.

- Set up a water quality lab for Harvest Select Catfish.

- Assisted the Alabama Catfish Queen in preparing for the World Miss Catfish Contest.

The “World” Miss Catfish has always been a Mississipii native and still is. Go figure.

- Assisted in photographing the Big Prairie Creek in Hale County and identified all its catfish farms. This creek is being compared to a creek without catfish farms for an environmental study conducted for the Alabama Catfish Producers.

- Assessed flooding potential and bridge construction on a catfish farm in Dallas County with personnel from the NRCS.

- Checked into BlueCross/ Blue Shield coverage for catfish farmers as a group. BC/BS not interested unless the group worked for a common single employer.

- Served on the Windows Fishy steering and development committee at MSU.

- Assisted Dr. Claude Boyd with setting up field data collection for a sedimentation study funded by SRAC.

- As an appointed Nuisance Control Alligator Hunter for the Department of Conservation and Natural Resources, removed seven alligators from recreational and catfish ponds in West Alabama. One was relocated and six were destroyed due to size and/or lack of fear for humans. A skull from a twelve footer was donated to the Alabama Musuem of Natural History at the University of Alabama.

- Assisted Kiyoshi Masuda, Agricultural Economics and Rural Sociology PH.D post doc, with socioeconomic study of the catfish industry. Interviewed a dozen catfish producers.

- Appointed Agency Representative for the Alabama Fish Farming Center for 2001-2002.

- Investigated the use of cheap Mexican copper which is fertilizer grade and does not have an EPA registration number. Cost is ten dollars less than registered copper.

- Investigated the conversion of an old hog parlor to fish culture in Northeast Alabama with David Cline.

- Acquired a new computer from funds donated by the Alabama Crawfish Association.

- Assumed responsibility and control of second verification study due to the departure of David Tiechert- Coddington from ACES.
- Developed Extension Training Program for county agents in Alternative Aquaculture for 2002.

- Judged 4-H project contest and a speech contest for the Hale County ACES office.

- Traveled to the state of San Paulo, Brazil to collect soil samples for a CRSP project under the direction of Dr. Claude Boyd. Also toured several aquaculture facilities.

- Provided extensive assistance to shrimp producer in Tuscaloosa. Set-up acclimation facility, stocked post larvae, monitored feeding and water quality, and used innovative harvesting technology.

- Provided extensive assistance to shrimp producer in Lowndes County. Live hauled post larvae shrimp from Greene County, monitored feeding and water quality, sampled shrimp on requlars basis and assisted in harvesting and marketing.

Summary of Activities

During FY 2001, the extension aquaculturist made 6,749 contacts. Almost 36% of these contacts were made through visits to the water quality lab, detailed technical assistance requests, farm visits and the quarterly newsletter. A more detailed accounting of the contacts can be found in Table 4.

Table 4.

Extension Aquaculturist Contacts		
Type of Contact	FY00	FY01
Individual Services		
Water Quality Testing	1112	1189
Detailed Assistance*	608	552
Farm Visits	51	38
Newsletters	750	675
Tours	122	172
Letters	9	25
Workshops	64	71
Speeches	410	600
Meetings	420	240
Catfish & Crawfish Festivals	3000	2000
Mailouts	427	1187
*Individuals calling or visiting requiring assistance on matters other than water quality.		

The real core of the extension aquaculturist's role at the Fish Center is one-on-one detailed assistance. Fiscal Year 2001 had few new producers - fewer than ten in West Alabama compared to 20-30 per year in previous years. Many established and experienced producers, who are less dependent on the Center's assistance, expanded operations during the year.

To date, 280 producers have been trained by the extension aquaculturist in water analysis. Routine water quality testing by the aquaculturist and the lab technician increased slightly. Training producers in routine water analysis and corrective management remains a high priority for the aquaculturist in order to wean them from routine services provided by the Center.

Table 5 reveals how counties have used the services of the aquaculturist. Eighteen percent of the services went to counties listed as "other" including producers from Autauga, Baldwin, Barbour, Bibb, Blount, Butler, Calhoun, Cherokee, Chilton, Choctaw, Clarke, Colbert, Coosa, Covington, Cullman, DeKalb, Elmore, Etowah, Fayette, Franklin, Geneva,

Henry, Houston, Jackson, Jefferson, Lamar, Lauderdale, Lee, Limestone, Lowndes, Madison, Marion, Mobile, Monroe, Montgomery, Pickens, Russell, Shelby, St. Clair, Sumter, Tallapoosa, Walker, Washington, Winston and Wilcox.

The extension aquaculturist provided assistance to 45 Alabama counties. He also aided producers and prospective producers in eleven other states and provided technical assistance to 37 producers in Florida, Georgia, and Mississippi. The Mississippi workload decreased because an extension aquaculturist in eastern Mississippi was employed last year.

Table 5.

Rankings of Usage

	Number of Individuals Receiving Technical Assistance*	%
Hale	637	38
Greene	152	9
Tuscaloosa	47	3
Marengo	120	7
Perry	244	15
Dallas	81	5
Other Counties	305	18
Other States and Countries	53	3
Aquaculture Industries & Governmental Agencies (Feed Mills, Processors, etc.)	29	2

*Includes detailed assistance and water quality testing.

The aquaculturist also assisted the fish health specialist on 10 occasions during the peak disease periods. The overlapping expertise of the aquaculturist and the disease specialist continues to enable the Center to function on a professional level during the temporary absence of either biologist.

Due to the popularity of E-mail, the aquaculturist receives several dozen requests monthly for assistance from Alabama's citizens and clientele scattered across the nation and the world. A more careful accounting of this additional service will be performed in the future.

The aquaculturist plans to continue his instructional efforts in the areas of water quality testing and management so that producers can more efficiently and effectively manage without being dependent on the Center for routine services. This will allow the aquaculturist to concentrate on other areas important to Alabama's aquacultural industry, which now includes not only commercial catfish but freshwater and saltwater shrimp, crawfish and caged tilapia.

Another highlight of the aquaculturist's year was the continuation of a verification project involving four different farms with ponds stocked at low and high densities. Collected data hopefully will better pinpoint the point of diminishing returns in commercial catfish culture.